



Patients' Perspectives on Hemodialysis Vascular Access: A Systematic Review of Qualitative Studies

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Background: Delayed creation of vascular access may be due in part to patient refusal and is associated with adverse outcomes. Concerns about vascular access are prevailing treatment-related stressors for patients on hemodialysis therapy. This study aims to describe patients' perspectives on vascular access initiation and maintenance in hemodialysis.

Study Design: Systematic review and thematic synthesis of qualitative studies.

Setting & Population: Patients with chronic kidney disease who express opinions about vascular access for hemodialysis.

Search Strategy & Sources: MEDLINE, EMBASE, PsycINFO, CINAHL, reference lists, and PhD dissertations were searched to October 2013.

Analytical Approach: Thematic synthesis was used to analyze the findings.

Results: From 46 studies involving 1,034 patients, we identified 6 themes: heightened vulnerability (bodily intrusion, fear of cannulation, threat of complications and failure, unpreparedness, dependence on a lifeline, and wary of unfamiliar providers), disfigurement (preserving normal appearance, visual reminder of disease, and avoiding stigma), mechanization of the body (bonded to a machine, internal abnormality, and constant maintenance), impinging on way of life (physical incapacitation, instigating family tension, wasting time, and added expense), self-preservation and ownership (task-focused control, advocating for protection, and acceptance), and confronting decisions and consequences (imminence of dialysis therapy and existential thoughts).

Limitations: Non-English articles were excluded.

Conclusions: Vascular access is more than a surgical intervention. Initiation of vascular access signifies kidney failure and imminent dialysis, which is emotionally confronting. Patients strive to preserve their vascular access for survival, but at the same time describe it as an agonizing reminder of their body's failings and "abnormality" of being amalgamated with a machine disrupting their identity and lifestyle. Timely education and counseling about vascular access and building patients' trust in health care providers may improve the quality of dialysis and lead to better outcomes for patients with chronic kidney disease requiring hemodialysis.

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Although hemodialysis prolongs life for patients with end-stage kidney disease, complications of vascular access contribute to 15%-20% of hospitalizations in patients on hemodialysis therapy and are associated with increased morbidity and mortality.^{1,2} Late referral and delayed creation of vascular access may be due in part to patient refusal and fears of dialysis and also are associated with increased risk of

complications.^{3,4} Concerns about vascular access, including cannulation, bleeding, infection, access failure, and staff inexperience, are prevailing treatment-related stressors for patients on hemodialysis therapy.^{5,6}

Arteriovenous fistulas (AVFs) are associated with better clinical outcomes and quality of life and lower costs compared with arteriovenous grafts (AVGs) and

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central venous catheters (CVCs). However, in the United States, 30% of eligible patients refuse AVF creation, and the reasons for this are not well understood.⁷⁻¹¹ Since implementation of the Fistula First Breakthrough Initiative, CVC use has decreased from ~27% in 2002 to <20% in 2013.^{12,13} However, concern remains about the use of CVCs,^{14,15} which have the highest risk of infections and are associated with cardiovascular events and death.

The NKF-KDOQI (National Kidney Foundation–Kidney Disease Outcomes Quality Initiative) guidelines for vascular access suggest that all patients with chronic kidney disease (CKD) stage 4 be educated about all modalities of renal replacement therapy to ensure timely referral for the placement of a dialysis access.¹⁶

Informed shared decision making and patient-centered care require an understanding of patients' values, concerns, and goals,¹⁷⁻¹⁹ which can be gained through qualitative research.^{20,21} Qualitative research can provide data about patients' values, beliefs, motivations, and priorities for the purpose of explaining social and experiential phenomena.²² The data usually are produced through interviews and focus groups. A systematic review of multiple primary qualitative studies can synthesize data for patients' beliefs, attitudes, and perspectives from different populations and contexts; enable comparisons; and generate higher order themes for a broader understanding of the range of patients' perspectives on the given topic.²³

The current data for the personal, lifestyle, and social impact of vascular access from patients' perspectives are intermittent, and differences in concerns and attitudes among specific patient populations and in differing clinical contexts toward the various types of vascular access are not well known. This study aims to describe the perspectives of patients on vascular access initiation and maintenance and inform strategies to maximize quality-of-care and quality-of-life outcomes among patients on hemodialysis therapy.

METHODS

We followed the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) framework.²³

Selection Criteria

Qualitative studies that explored the expectations or experiences of adults aged 18 years or older, in any stage of CKD, and using any type of vascular access (AVF, AVG, or CVC) were eligible.

Data Sources and Searches

The search strategy is provided in [Table S1](#) (provided as online supplementary material). The searches were in MEDLINE, EMBASE, PsycINFO, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) from inception to October 11, 2013. Reference lists of relevant articles, Google Scholar, and PubMed also were searched. We also conducted searches in ProQuest Dissertations and Theses Database, British Library Electronic Theses Online Service (EThOS), and the DART-Europe E-theses Portal for doctoral dissertations. Two of the authors

(J.R.C. and A.T.) screened search results and excluded those that did not meet the inclusion criteria. Full texts of potentially relevant studies were assessed for eligibility.

Data Extraction and Quality Assessment

We assessed the comprehensiveness of reporting of each primary study with items adapted from the Consolidated Criteria for Reporting Qualitative Research (COREQ) framework, which included criteria specific to the research team, study methods, study setting, analysis, and interpretations.²⁴ Two reviewers (J.R.C. and C.S.H.) independently assessed each study, and discrepancies were resolved through discussion.

Data Analysis

Based on thematic synthesis methods,²¹ all text and participant quotations under the “results/findings” or “conclusion/discussion” section of each article were imported into qualitative data management software (HyperRESEARCH, version 3.0.3, 2009; ResearchWare Inc). J.R.C. performed line-by-line coding of the findings of the primary studies, conceptualized the data, and inductively identified concepts relating to patient's perspectives on vascular access. For subsequent articles, the text was coded into existing concepts or a new concept was created when needed. Similar concepts were grouped into themes and subthemes. J.R.C. identified conceptual links among themes to develop an analytical thematic schema. Two reviewers (C.S.H. and A.T.) also read the articles independently to check that all data were included in the interpretation, preliminary analysis, and analytical framework and discussed the addition or revision of themes with the first reviewer (J.R.C.). These were integrated into the final analysis. This form of investigator triangulation can ensure that all themes and the analytical framework capture and reflect the full breadth of data.

RESULTS

Literature Search

Our search yielded 401 articles. Of these, 46 articles were included ([Fig 1](#)). One study did not report the number of patients. The other 45 articles involved 1,034 patients (761 were receiving hemodialysis; 67, peritoneal dialysis; 42, non-dialysis dependent; and 164, dialysis modality not specified; [Table 1](#)).

Comprehensiveness of Reporting

The completeness of reporting was variable, with studies reporting 5-23 of the 24 items possible ([Table 2](#)). The participant selection strategy was described in 39 (85%) studies. Theoretical saturation (defined as when little or no new relevant concepts were arising from subsequent data collection) was reported in 19 (41%) studies. Member checking (obtaining feedback from participants on the preliminary findings) was reported in 16 (35%) studies, whereas researcher triangulation in data analysis was reported in 20 (43%) studies.

Synthesis

We identified 6 themes: heightened vulnerability, disfigurement, mechanization of the body, impinging on way of life, self-preservation and ownership, and confronting decisions and consequences. Selected quotations to illustrate each theme are provided in

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